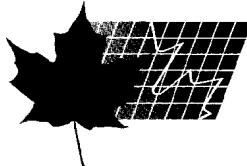


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Ottawa Hull K1A 0C9

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(19) (CA) APPLICATION FOR CANADIAN PATENT (12)

(54) Disposable Scalpel

(72) Haining, Michael L. - U.S.A. ;

(71) Same as inventor

(57) 8 Claims

Notice: This application is as filed and may therefore contain an incomplete specification.



Industrie Canada Industry Canada

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ABSTRACT

There is provided a disposable scalpel having a retractable blade. The blade may be secured in any of three positions: 1) an intermediated retracted position for shipping, 2) an exposed position for use and 3) a permanently locked retracted position. A cap is provided to cover the openings on the scalpel after the blade is secured in the permanently locked position.

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1 DISPOSABLE SCALPEL

2 BACKGROUND OF THE INVENTION

3 Field of the Invention

4 The present invention relates generally to surgical knives
5 and more particularly to disposable scalpels. Most particularly
6 the invention relates to a disposable scalpel which may be
7 retracted into the handle for safe disposal.

8

9 Related Art

10 Surgical scalpels are special knives, the blades of which
11 are manufactured to precise standards of high quality materials.
12 For various reasons, it has become common to use a scalpel blade
13 only once. Therefore there are several combination
14 handle/replaceable blade scalpels disclosed in the art.
15 Additionally there are now available completely disposable
16 scalpels having inexpensive plastic handles secured to the
17 scalpel blade.

18 With the advent of the AIDS virus, there has now arisen much
19 concern about transmission of disease by contact with
20 contaminated blood. Sharp instruments, such as scalpels, which
21 routinely come into contact with body fluids, are particularly
22 worrisome. For this reason scalpels have been provided with
23 removable guards to prevent contact with the blade when not in
24 use. See for example U.S. patent 4,735,202 which discloses a
25 scalpel in which the glade guard is provided in the form of a
26 sleeve which is slidably mounted over the scalpel and may be

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1 locked into position over the blade when not in use. The blade
2 guard requires two hands to position. Additionally U.S. patent
3 5,139,507 discloses such a scalpel whose guard may be easily
4 moved into or out of position by the surgeon during actual
5 surgery to prevent accidental cutting or jabbing when passing the
6 instrument back and forth during surgery.

7 Most retractable blade guards have the disadvantage of
8 being open at one end to allow passage of the blade. Such
9 opening can allow any body fluids left on the blade to seep out
10 and come into contact with either operating room personnel or
11 clean up personnel.

12 After any "disposable" scalpel or blade is used there is
13 still the problem of disposing of it. The scalpels or blades
14 must be placed in special "sharps" containers to prevent
15 janitorial or other clean up personnel from coming into contact
16 with the contaminated instruments. Even if the blade is covered
17 by a guard or sheath, there is a chance that the guard might
18 become retracted or removed. Additionally, there is always the
19 temptation to reuse such instruments, especially in poorer areas
20 where disposal of a "perfectly good scalpel" might appear as a
21 waste.

22 Broadly it is an object of the present invention to provide
23 a scalpel with a retractable blade such that the blade can be
24 positioned for use and retracted into the handle after use.

25 It is another object of the invention to provide a
26 retractable blade scalpel that when fully retracted is

1 permanently locked in the retractable position to prevent
2 accidental reopening or reuse.

3 It is a further object of the invention to provide a closed
4 container after retraction of the blade for safe disposal of the
5 scalpel.

6 SUMMARY OF THE INVENTION

7 To achieve the above objects a scalpel is provided with a
8 blade that is retractable into the handle. The blade may be
9 positioned in three locations within the handle: 1) retracted
10 for shipment, 2) exposed for use and 3) fully retracted and
11 locked for disposal. The scalpel is shipped with a cap over the
12 end which may be placed over the end after final retraction to
13 provide a closed container for disposal.

14 More particularly the retractable blade scalpel comprises

15 (a) a handle defining a chamber with an opening at the
16 distal end, and having a slot through the upper surface and
17 notches in said chamber near either end of said slot;

18 (b) a projection on the lower surface of said chamber near
19 the proximal end;

20 (c) a blade carrier slidably mounted within said chamber;

21 (d) a surgical blade secured on said blade carrier oriented
22 toward said opening;

23 (e) an upper flexible member extending from said blade
24 carrier having a tab at the proximal end to engage either said
25 notches to secure said blade in an exposed position or retracted
26 position; and

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1 (f) a lower flexible member extending from said blade
2 carrier having a notch on the under surface engageable with said
3 projection to permanently lock said carrier and blade in a
4 retracted position.

BRIEF DESCRIPTION OF THE DRAWING

6 FIG. 1 is a sid view of a retractable blade scalpel with the
7 blade exposed.

8 FIG. 2 is a side view the scalpel of FIG. 1 with one of the sides
9 removed to expose the inner parts.

10 FIG. 3 is side view in partial cross section showing the blade
11 retracted and locked in position and the cap over the end.

12 FIG. 4 is a front view of the scalpel shown in FIG. 1.

13 Fig. 5 is a rear view of the blade carrier that slides within the
14 handle.

15 FIG. 6 is an exploded view showing one side of the handle, the
16 blade and carrier, and the cap.

17 FIG. 7 is a side view showing the blade carrier in the shipping
18 position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

20 For a detailed description of the preferred embodiment the
21 reader is directed to the accompanying figures in which like
22 components are given like numerals for ease of reference.

23 Looking first to FIG.'s 1 - 6 there is shown a scalpel
24 having a handle 10 of two mirror image side members 16 and 18
25 which are held together by pin 13. A blade 20 is secured on a
26 blade carrier 30 as by rivets 32. The blade as shown has a

1 cutting surface 22 and a dull top surface 24. The two side
2 members 16 and 18 when fastened together define a chamber 60 in
3 which the carrier 30 is mounted. Inside of each side member at
4 the top and bottom of the chamber 60 there are two parallel
5 sliding surfaces 21 and 23 which support and guide upper member
6 33 and lower member 34 of carrier 30. Empty space 39 between
7 members 33 and 34 fits about pin receptacle 13A which extends
8 across chamber 60 to assist in alignment of blade 20 and carrier
9 30.

10 In the upper surface of each side member there is a slot 15
11 extending from near the front or distal end of the scalpel to
12 end of chamber through which extend tab 40 which is part of upper
13 member 33. The end of upper member 33 is flexible and biased
14 upward against sliding surface 21. Near the front of slot 15
15 there is a notch in sliding surface 21 to receive shoulder 42
16 (see FIG. 5) on tab 40 and secure carrier 30 and blade 20 in the
17 exposed position.

18 On the lower sliding surface 23 there is a projection 11
19 near the proximal end of the chamber having a rearward sloping
20 front 45 and a slightly rearward sloping rear 17. The end of
21 lower blade carrier member 34 is also flexible and biased
22 downward against lower sliding surface 23. On the under surface
23 of lower blade carrier member 34 there is a notch 36 which is
24 adapted to fit over projection 11, the rear of notch 36
25 conforming to the rear 17 of projection 11 to prevent any further
26 movement of carrier 30 with blade 20. Sloping portion 37 on rear

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1 of lower carrier member 34 facilitates movement of lower carrier
2 member 34 up slope 45 for locking as shown in FIG. 3. Cap 50 is
3 placed over the end of scalpel after locking to provide a closed
4 container for disposal. Importantly the cap 50 covers the entire
5 length of slot 15 to prevent any body fluids from escaping there
6 through.

7 Near the rear of slot 15 there is another notch 14 for
8 securing the blade in an intermediate position for shipping.
9 Details are shown in FIG. 7. The tap 40 engages notch 14 before
10 notch 36 in lower carrier member 34 can engage projection 11 on
11 lower sliding surface 23. Although not shown, the cap 50 is
12 placed over the end of the scalpel for shipment.

13 It is anticipated that the scalpel will be shipped in the
14 intermediate position with the cap covering the end. In use the
15 cap is removed and the tab pressed down and forward until the
16 tab engages the front notch to secure the blade in the exposed
17 position. If at any time the surgeon wishes to lay aside the
18 scalpel for later use on the patient, he may slide the blade back
19 to the intermediate position. After use the tab is pressed
20 downward and rearward until the lower carrier member engages the
21 projection on the lower sliding surface to permanently lock the
22 carrier inside the chamber. The only way to unlock the carrier
23 would be to disassemble the two sides of the handle. However, in
24 a preferred embodiment the two side members 16 and 18 are
25 securely riveted together and disassembly would destroy the
26 rivet.

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A surgical scalpel comprising:

(a) a handle defining a chamber at the distal end;

(b) a surgical blade slidably mounted within said chamber;

and

(c) first means secured to said blade and extending externally of said chamber to move said blade from an first exposed position to a second position completely within said chamber.

2. The surgical scalpel according to claim 1 further comprising second means to releasably secure said blade in said first position.

3. The surgical scalpel according to claim 2 further comprising first means to releasably secure said blade in said second position.

4. The surgical scalpel according to claim 3 further comprising third means to permanently secure said blade in said second position.

5. The surgical scalpel according to claim 4 further comprising a cap adapted to fit about the end of said handle when said blade is in said second position.

6. A retractable blade surgical scalpel comprising:

(a) a handle defining a chamber with an opening at the distal end, and having a slot through the upper surface and notches in said chamber near either end of said slot;

(b) a projection on the lower surface of said chamber near

the proximal end;

(c) a blade carrier slidably mounted within said chamber;

(d) a surgical blade secured on said blade carrier oriented toward said opening;

(e) an upper flexible member extending from said blade carrier having a tab at the proximal end to engage either said notches to secure said blade in an exposed position or retracted position; and

(f) a lower flexible member extending from said blade carrier having a notch on the under surface engageable with said projection to permanently lock said carrier and blade in a retracted position.

7. The scalpel according to claim 6 further comprising a cap adapted to fit over said handle at the distal end when said carrier and blade are in the retracted position.

8. The scalpel according to claim 7 wherein said cap completely covers said slot when said carrier and blade are permanently locked in the retracted position.

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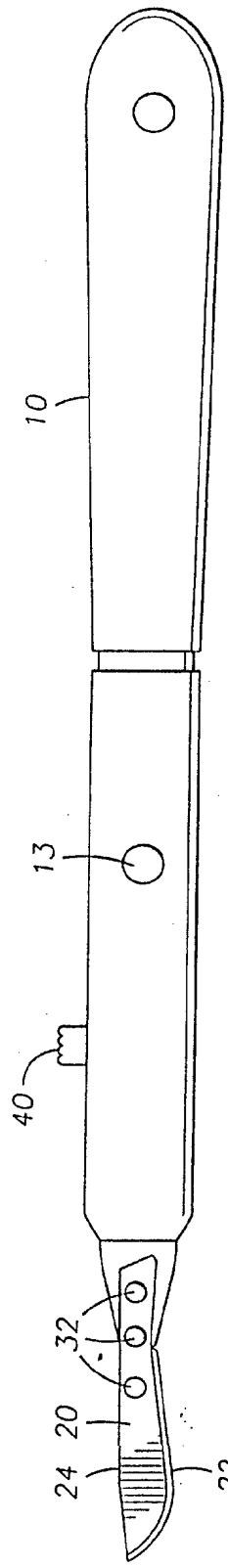


FIG. 1

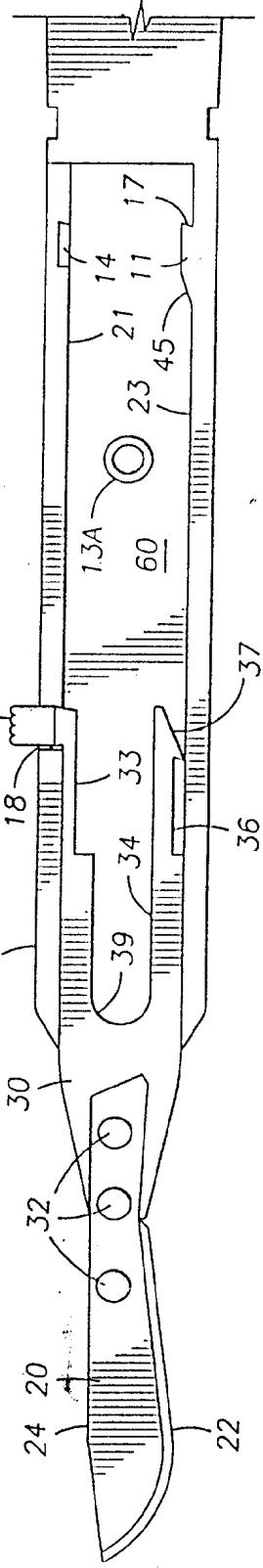


FIG. 2

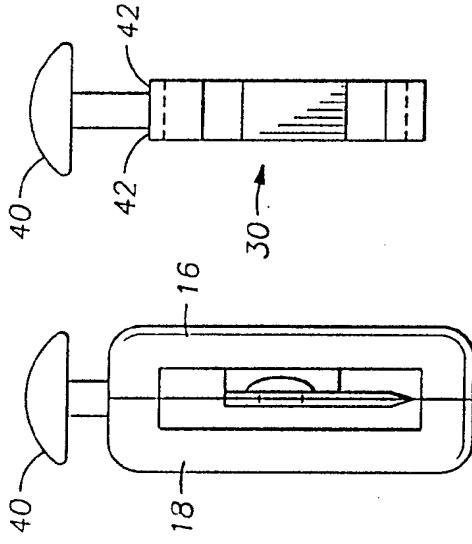


FIG. 3

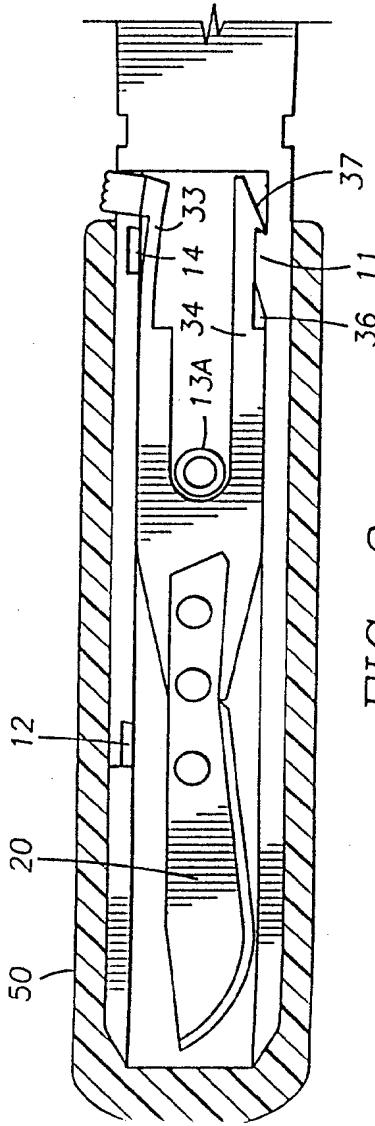


FIG. 4

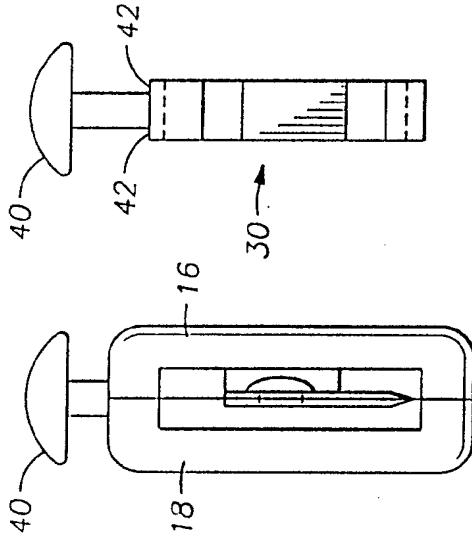


FIG. 5

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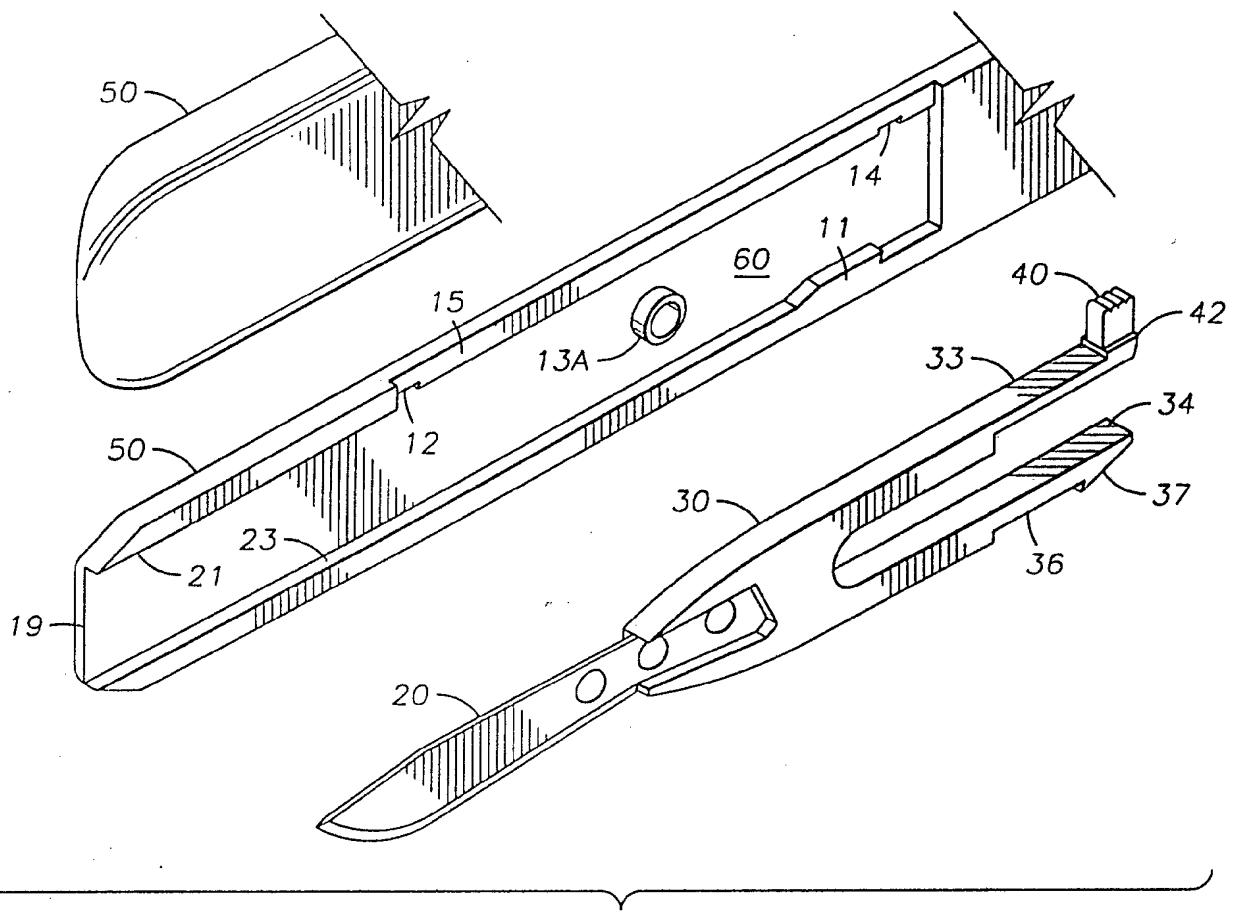


FIG. 6

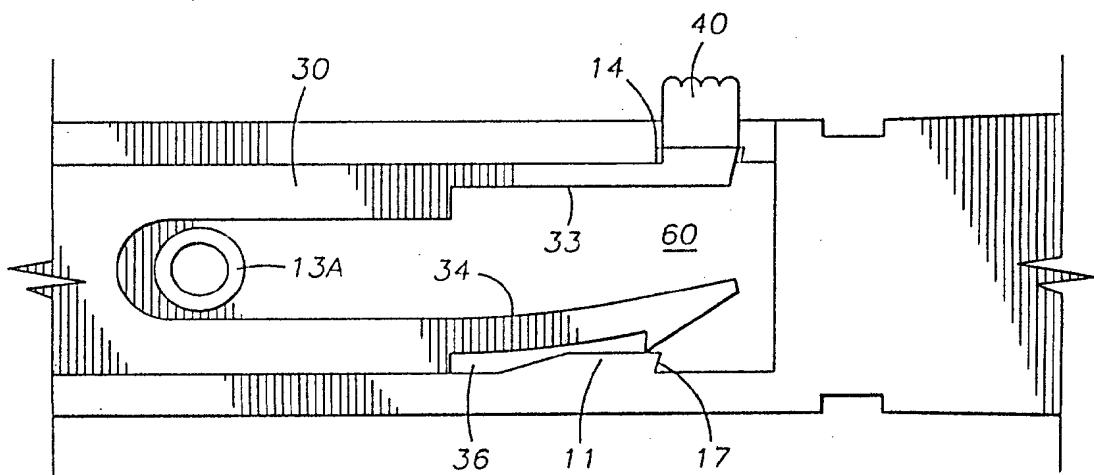


FIG. 7

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